QW-482 SUGGESTED FORMAT FOR WELDING PROCEDURE SPECIFICATIONS (WPS)
(See QW-200.1, Section IX, ASME Boiler and Pressure Vessel Code)

Company Name Incodema By JAMES I MARTIN

Welding Procedure Specification No. SS1214 Date _____ Supporting PQR No.(s) INC 1

Revision No. _____ Date _____

Welding Process(es) GTAW Type(s) MANUAL
(Automatic, Manual, Machine, or Semi-Automatic)

JOINTS (QW-402) Groove

Joint Design _____

Backing: Yes _____ No 4

Backing Material (Type) _____
(Refer to both backing and retainers)

☐ Metal ☐ Nonfusing Metal

☐ Nonmetallic ☐ Other

Sketches, Production Drawings, Weld Symbols, or Written Description should show the general arrangement of the parts to be welded. Where applicable, the root spacing and the details of weld groove may be specified.

(At the option of the Manufacturer, sketches may be attached to illustrate joint design, weld layers, and bead sequence (e.g., for notch toughness procedures, for multiple process procedures, etc.))

Details

COVER PASS
ROOT PASS

GAP & LAND 1/16 .030

*BASE METALS (QW-403)

P-No. 8 Group No. _____ to P-No. _____ Group No. _____

OR

Specification Type and Grade 304 Stainless Schedule 40 2" ID pipe

to Specification Type and Grade _____

OR

Chem. Analysis and Mech. Prop. _____

to Chem. Analysis and Mech. Prop. _____

Thickness Range:

Base Metal: Groove .140 Fillet _____

Other _____

*FILLER METALS (QW-404)		
Spec. No. (SFA)	5.9	
AWS No. (Class)	A 5.9	
F-No.	6	
A-No.		
Size of Filler Metals	1/16	1/16" 308 L
Weld Metal Thickness Range:		
Groove	.140"	
Fillet		
Electrode-Flux (Class)		
Flux Trade Name		
Consumable Insert		
Other		

*Each base metal-filler metal combination should be recorded individually.

AWS QC 1
ROBERT B. CAMPBELL
96121291
CWI

(11/06)

QW-482 (Back)

WPS No. _____ Rev. _____

POSITIONS (QW-405)
Position(s) of Groove: Six G
Welding Progression: Up ✓ Down _____
Position(s) of Fillet _____

POSTWELD HEAT TREATMENT (QW-407)
Temperature Range _____
Time Range _____

PREHEAT (QW-406)
Preheat Temperature, Minimum: 72°
Interpass Temperature, Maximim: 750°
Preheat Maintenance _____
(Continuous or special heating, where applicable, should be recorded)

GAS (QW-408)

	Gas(es)	Percent Composition (Mixture)	Flow Rate
Shielding	Argon	100%	25 CFH
Trailing			
Backing			

ELECTRICAL CHARACTERISTICS (QW-409)
Current AC or DC: DC Polarity: Straight
Amps (Range): 80 - 125 Volts (Range) _____
(Amps and volts range should be recorded for each electrode size, position, and thickness, etc. This information may be listed in a tabular form similar to that shown below.)

Tungsten Electrode Size and Type: 3/32" 2% (Pure Tungsten, 2% Thoriated, etc.)

Mode of Metal Transfer for GMAW _____ (Spray Arc, Short Circuiting Arc, etc.)

Electrode Wire Feed Speed Range _____

TECHNIQUE (QW-410)
String or Weave Bead: String
Orifice or Gas Cup Size: #6
Initial and Interpass Cleaning (Brushing, Grinding, etc.): Wire Brush
Method of Back Gouging: N/A
Oscillation: N/A
Contact Tube to Work Distance: N/A
Multiple or Single Pass (Per Side): Multiple
Multiple or Single Electrodes: N/A
Travel Speed (Range): Manual
Peening: N/A
Other _____

Weld Layer(s)	Process	Filler Metal Class	Filler Metal Diameter	Current Type/ Polarity	Current Amp Range	Volt Range	Travel Speed Range	Other (e.g., Remarks, Comments, Hot Wire Addition, Technique, Torch Angle, etc.)
Root	GTAW		1/16	DCSP	80-125	10-15		manual
Cover	GTAW		1/16	DCSP	80-125	10-15		manual

(11/06)

QW-482 SUGGESTED FORMAT FOR WELDING PROCEDURE SPECIFICATION (WPS)

(See QW-201.1, Section IX, ASME Boiler and Pressure Vessel Code)

Company Name: Incodema By: Robert B Campbell Cw I

Welding Procedure Specification No.: SS/2/4 Date: _____ Supporting PQR No.(s): INC 1

Revision No.: _____ Date: _____

Welding Process(es): GTAW Type (s): Manual (Automatic, Manual, Machine or Semi-Automatic)

JOINTS (QW-402)

Joint Design: Groove

Root Spacing: 1/16

Backing (Yes) _____ (No) X

Backing Material (Type) _____ (refer to both backing and retainers)

☒ Metal ☐ Nonmetallic ☐ Nonfusing Metal ☐ Other

Details

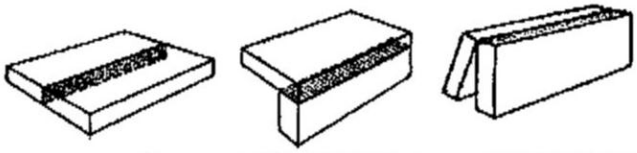


FIG A (BUTT JOINT) FIG B (CORNER JOINT) FIG C (EDGE JOINT)

Sketches, Production Drawings, Weld Symbols or Written Description should show the general arrangement of the parts to be welded. Where applicable, the root spacing and the details of weld groove may be specified.

[At the option of the manufacturer, sketches may be attached to illustrate joint design, weld layers and bead sequence (e.g., for notch toughness procedures, for multiple process procedures etc.)]

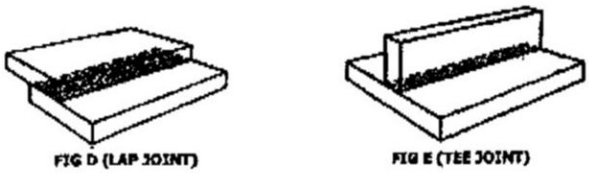


FIG D (LAP JOINT) FIG E (TEE JOINT)

☐ Other (Describe) _____

☐ Figure A ☐ Figure B ☐ Figure C ☐ Figure D ☐ Figure E

***BASE METALS (QW-403)**

P-No. 8 Group No. _____ to P-No. 8 Group No. _____

OR

Specification type/grade or UNS number to Specification type/grade or UNS number: 304L 2" pipe Schedule 40

OR

Chem. Analysis and Mech. Prop. to Chem. Analysis and Mech. Prop.: _____

Thickness Range:

Base Metal: Groove .140 Fillet _____

Other _____

Maximum Pass Thickness ≤ 1/2 inch (13 mm) (Yes) ☐ (No) ☐

***FILLER METALS (QW-404)**

	1	2	3	4
Spec. No. (SFA)	5.9			
AWS No. (Class)	308L			
F-No.	6			
A-No.				
Size of Filler Metals	1/16			
Filler Metal Product Form				
Supplemental Filler Metal				
Weld Metal Thickness Range:	.125 - .313			
Groove				
Fillet				
Electrode-Flux (Class)				
Flux Type				
Flux Trade Name				
Consumable Insert				
Other				

*Each base metal-filler metal combination should be recorded individually.

QW-482 (Back)

WPS No. _____ Rev _____

POSITIONS (QW-405)
Position(s) of Groove 6G
Welding Progression: Up X Down _____
Position(s) of Fillet _____
Other _____

POST WELD HEAT TREATMENT (QW-407)
Temperature Range _____
Time Range _____
Other _____

PREHEAT (QW-406)
Preheat Temperature, Minimum 72°
Interpass Temperature Maximum 750
Preheat Maintenance _____
Other _____
(Continuous or special heating where applicable should be recorded)

GAS (QW-408)

	Gas(es)	Percent Composition (Mixture)	Flow Rate
Shielding	Argon	100%	25 CFH
Trailing			
Backing	Argon	100%	5 CFH
Other			

ELECTRICAL CHARACTERISTICS (QW-409)
DCEN

Weld Pass(es)	Process	Classification	Diameter.	Type and Polarity	Amperage Range	Voltage Range	Travel Speed Range	Other (e.g., Remarks, Comments, Hot Wire Addition, Technique, Torch Angle, Etc.)
1	GTAW		1/16	DCEN	80-125		3-7 IPM	
2	GTAW		1/16	DCEN	80-125		3-7 IPM	

(Amperage and voltage range should be recorded for each electrode size, position, and thickness, etc)
Pulsing Current N/A
Heat Input (max) _____
Tungsten Electrode Size and Type 3/32 Dia. 2% Thoriated
(Pure Tungsten, 2% Thoriated, etc.)
Mode of Metal Transfer for GMAW N/A
(Spray arc, short circuiting arc, etc.)
Electrode Wire feed speed range N/A
Other _____

TECHNIQUE (QW-410)
String or Weave Bead String
Orifice or Gas Cup Size #6
Initial and Interpass Cleaning (Brushing, Grinding, etc.) Wire Brush
Method of Back Gouging N/A
Oscillation N/A
Contact Tube to Work Distance N/A
Multiple or Single Pass (per side) Multiple
Multiple or Single Electrodes Single
Electrode Spacing _____
Peening _____
Other _____

QW-482 SUGGESTED FORMAT FOR WELDING PROCEDURE SPECIFICATIONS (WPS)
(See QW-200.1, Section IX, ASME Boiler and Pressure Vessel Code)

Company Name Encodema By Richard Reynolds
Welding Procedure Specification No. SS1214 Date _____ Supporting PQR No.(s) INC .1
Revision No. _____ Date _____
Welding Process(es) GTAW Type(s) Manual
(Automatic, Manual, Machine, or Semi-Automatic)

JOINTS (QW-402)
Joint Design Groove
Backing: Yes _____ No _____
Backing Material (Type) _____
(Refer to both backing and retainers)

☐ Metal ☐ Nonfusing Metal
☐ Nonmetallic ☐ Other

Sketches, Production Drawings, Weld Symbols, or Written Description should show the general arrangement of the parts to be welded. Where applicable, the root spacing and the details of weld groove may be specified.

[At the option of the Manufacturer, sketches may be attached to illustrate joint design, weld layers, and bead sequence (e.g., for notch toughness procedures, for multiple process procedures, etc.)]

Details

COVER PASS
ROOT PASS

.060 GAP & LAND .030

*BASE METALS (QW-403)
P-No. 8 Group No. _____ to P-No. _____ Group No. _____
OR
Specification Type and Grade _____
to Specification Type and Grade _____
OR
Chem. Analysis and Mech. Prop. _____
to Chem. Analysis and Mech. Prop. _____
Thickness Range:
Base Metal: Groove .140" Fillet _____
Other _____

*FILLER METALS (QW-404)		
Spec. No. (SFA)	5.9	
AWS No. (Class)	A5.9	
F-No.	6	
A-No.		
Size of Filler Metals	.060	
Weld Metal Thickness Range:		
Groove	.140"	
Fillet		
Electrode-Flux (Class)		
Flux Trade Name		
Consumable Insert		
Other		

*Each base metal-filler metal combination should be recorded individually.

AWS QC 1
ROBERT B. CAMPBELL
96121291
CWI

(11/06)

QW-482 (Back)

WPS No. _____ Rev. _____

POSITIONS (QW-405)
Position(s) of Groove: Six G
Welding Progression: Up X Down _____
Position(s) of Fillet _____

POSTWELD HEAT TREATMENT (QW-407)
Temperature Range _____
Time Range _____

PREHEAT (QW-406)
Preheat Temperature, Minimum 72°
Interpass Temperature, Maximim 750°
Preheat Maintenance _____
(Continuous or special heating, where applicable, should be recorded)

GAS (QW-408)

	Gas(es)	Percent Composition (Mixture)	Flow Rate
Shielding	ARGON	100%	25 CFM
Trailing			
Backing			

ELECTRICAL CHARACTERISTICS (QW-409)
Current AC or DC DC Polarity straight
Amps (Range) 80 - 120 Volts (Range) _____
(Amps and volts range should be recorded for each electrode size, position, and thickness, etc. This information may be listed in a tabular form similar to that shown below.)
Tungsten Electrode Size and Type 2% 3/32" DIA
(Pure Tungsten, 2% Thoriated, etc.)
Mode of Metal Transfer for GMAW _____
(Spray Arc, Short Circuiting Arc, etc.)
Electrode Wire Feed Speed Range _____

TECHNIQUE (QW-410)
String or Weave Bead _____
Orifice or Gas Cup Size 7
Initial and Interpass Cleaning (Brushing, Grinding, etc.) Wire Brush
Method of Back Gouging _____
Oscillation _____
Contact Tube to Work Distance _____
Multiple or Single Pass (Per Side) multiple
Multiple or Single Electrodes _____
Travel Speed (Range) _____
Peening _____
Other _____

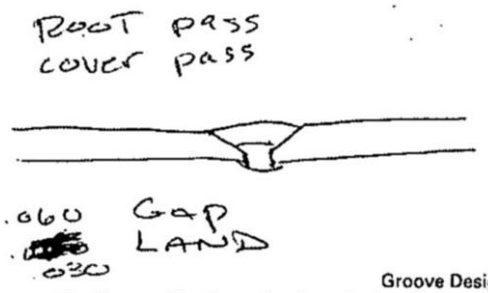
Weld Layer(s)	Process	Filler Metal Class	Filler Metal Diameter	Current Type/ Polarity	Current Amp Range	Volt Range	Travel Speed Range	Other (e.g., Remarks, Comments, Hot Wire Addition, Technique, Torch Angle, etc.)
Root	GTAW	308L	.060	DCSP	80-120	10-15	5-10 IPM	
Cover	GTAW	308L	.060	DCSP	80-120	10-15	5-10 IPM	

(11/06)

QW-483 SUGGESTED FORMAT FOR PROCEDURE QUALIFICATION RECORDS (PQR)
(See QW-200.2, Section IX, ASME Boiler and Pressure Vessel Code)
Record Actual Conditions Used to Weld Test Coupon

Company Name INCODEMA
Procedure Qualification Record No. INC 1 Date 6-24
WPS No. SS 1214
Welding Process(es) GTAW
Types (Manual, Automatic, Semi-Automatic) manual

JOINTS (QW-402)



Groove Design of Test Coupon
(For combination qualifications, the deposited weld metal thickness shall be recorded for each filler metal or process used.)

BASE METALS (QW-403)
Material Spec.
Type or Grade 304
P-No. 8 to P-No.
Thickness of Test Coupon .140
Diameter of Test Coupon 1" ID
Other

POSTWELD HEAT TREATMENT (QW-407)
Temperature
Time
Other

GAS (QW-408)

	Gas(es)	Percent Composition (Mixture)	Flow Rate
Shielding	ARGON	100%	25 CFM
Trailing			
Backing			

FILLER METALS (QW-404)
SFA Specification 5.9
AWS Classification A5.9
Filler Metal F-No. 6
Weld Metal Analysis A-No.
Size of Filler Metal .060
Other
Weld Metal Thickness

ELECTRICAL CHARACTERISTICS (QW-409)
Current DC
Polarity Straight
Amps. 80-120 Volts 10-15
Tungsten Electrode Size 3/32
Other

POSITION (QW-405)
Position of Groove Six G
Weld Progression (Uphill, Downhill) uphill
Other

TECHNIQUE (QW-410)
Travel Speed 5-10 IPM
String or Weave Bead String
Oscillation
Multipass or Single Pass (Per Side) multiple
Single or Multiple Electrodes
Other

PREHEAT (QW-406)
Preheat Temperature 72°
Interpass Temperature 750°
Other

11/06

QW-483 (Back)

PQR No. _____

Tensile Test (QW-150)

Specimen No.	Width	Thickness	Area	Ultimate Total Load, lb	Ultimate Unit Stress, psi	Type of Failure and Location

Guided-Bend Tests (QW-160)

Type and Figure No.	Result

Toughness Tests (QW-170)

Specimen No.	Notch Location	Specimen Size	Test Temperature	Impact Values			Drop Weight Break (Y/N)
				ft-lb	% Shear	Mils	

Comments _____

Fillet-Weld Test (QW-180)

Result — Satisfactory: Yes _____ No _____ Penetration into Parent Metal: Yes _____ No _____

Macro — Results _____

Other Tests

Type of Test _____

Deposit Analysis _____

Other _____

.....

Welder's Name _____ Clock No. _____ Stamp No. _____

Tests Conducted by _____ Laboratory Test No. _____

We certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME BOILER AND PRESSURE VESSEL CODE.

Manufacturer _____

Date _____ By _____

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the Code.)

11/06

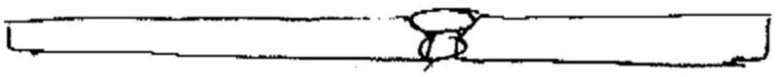
QW-483 SUGGESTED FORMAT FOR PROCEDURE QUALIFICATION RECORDS (PQR)

(See QW-200.2, Section IX, ASME Boiler and Pressure Vessel Code)

Record Actual Conditions Used to Weld Test Coupon

Company Name: INCODEMA
Procedure Qualification Record No.: INC-1 Date: 6/24/2010
WPS No.: SS12/4
Welding Process (es): GTAW
Types (Manual, Automatic, Semi-Automatic): Manual

JOINTS (QW-402)



1/16 Root Gap
1/16 Land

Groove Design of Test Coupon (sketch, figure or reference)

(For combination qualifications, the deposited weld metal thickness shall be recorded for each filler metal and process used.)

BASE METALS (QW-403)

Material Specification:
Type or Grade or UNS Number: 304L
P No. 8 Group No. ____ to P No. 8 Group No ____
Thickness of Test Coupon: .140
Diameter of Test Coupon: 2"
Maximum Pass Thickness:
Other:

FILLER METALS (QW-404)

Layer (combination welds)	1	2	3
SFA Specification	5.9		
AWS Classification	308L		
Filler Metal F No.	6		
Weld Metal Analysis A No.			
Size of Filler Metal	1/16		
Filler Metal Product Form			
Supplemental Filler Metal			
Electrode Flux Classification			
Flux Type			
Flux Trade Name			
Weld Metal Thickness			

Other:

POSITION (QW-405)

Position of Groove: 6G
Weld Progression (Uphill, Downhill): Uphill
Other:

PREHEAT (QW-406)

Preheat Temperature: 720°
Interpass Temperature: 7500
Other:

POST WELD HEAT TREATMENT (QW-407)

Temperature:
Time:
Other:

GAS (QW-408)

	Gas (es)	Percent Composition (Mixture)	Flow Rate
Shielding	Argon	100%	25 CFH
Trailing			
Backing	Argon	100%	5 CFH
Other			

ELECTRICAL CHARACTERISTICS (QW-409)

Current: DC
Polarity: EN
Amps: 80-120 Volts:
Tungsten Electrode Size: 3/32
Transfer Mode for GMAW (FCAW):
Other:

TECHNIQUE (QW-410)

Travel Speed: 3-7 IPM
String or Weave Bead: String
Oscillation:
Multipass or Singles Pass (per side): Multipass
Single or Multiple Electrodes: Single
Other:

QW-483 (Back)

PQR No. _____

Tensile Test (QW-150)

Specimen Number	Width	Thickness	Area	Ultimate Total Load	Ultimate Unit Stress (psi or MPa)	Type of Failure & Location
1	.7495	.1409	.1087	9,490	87.5 K-SI	Weld Metal
2	.7495	.1356	.1046	9,214	88.0	Weld Metal

Guided Bend Tests (QW-160)

Type and Figure No.	Result
FACE #1	Pass
FACE #2	Pass
ROOT #1	Pass
ROOT #2	Pass

Toughness Tests (QW-170)

Specimen Number	Notch Location	Specimen Size	Test Temperature	Impact Values			Drop Weight Break (Yes/No)
				Ft-lb or J	% Shear	Mils (in.) or mm	

Comments _____

Fillet Weld Test (QW-180)

Result- Satisfactory: Yes _____ No _____ Penetration into Parent Metal: Yes _____ No _____

Macro - Results _____

Other Tests

Type of Test _____

Deposit Analysis _____

Other _____

Welders Name James L Martin Clock No. _____ Stamp No. _____

Tests Conducted by IMR Test Labs Laboratory Test Number 201005249B

We certify that statements made in this record are correct and that the test welds were prepared, welded, and tested in accordance with the Requirements of Section IX of the ASME Boiler and Pressure Vessel Code

Manufacturer or Contractor _____

Date 6/28/2010 Certified By Jim Andrews CWI

(Detail of record of tests are illustrative only and may be modified to conform to the type and number of tests required by the code.)

QW-484A – SUGGESTED FORMAT A FOR WELDER PERFORMANCE QUALIFICATIONS (WPQ)

(See QW-301, Section IX, ASME Boiler and Pressure Vessel Code))

Welders Name: Richard Reynolds Identification No.: _____

Test Description

Identification of WPS followed: SS/2/4 ☒ Test Coupon ☐ Production weld

Specification and type/grade or UNS number of base metal(s): _____ Thickness: _____

Testing Conditions and Qualification Limits

Welding Variables (QW-350)	Actual values	Range qualified
Welding process (es)	GTAW	
Type (i.e., manual, semi-automatic) used	Manual	
Backing (with/without, metal, weld metal, double-welded, etc.)	WITHOUT	
☐ Plate ☒ Pipe (enter diameter, if pipe or tube)	2"	2" - 6"
Base metal P- or S-Number to P-or S-Number	8 to 8	8
Filler metal or electrode specification(s) (SFA) (info only)	5.9	5.9
Filler metal or electrode classification(s) (info only)	308L	308L
Filler metal F-Number(s)	6	6
Consumable insert (GTAW or PAW)	NO	NO
Filler type (solid/metal or flux cored/powder (GTAW or PAW)	Solid	Solid
Deposit thickness for each process		
Process 1: GTAW — 3 layers minimum ☐ Yes ☒ No	.62	
Process 2: GTAW — 3 layers minimum ☐ Yes ☒ No	.90	
Position qualified (2G, 6G, 3F, etc.)	6G	
Vertical progression (uphill or downhill)	uphill	
Type of fuel gas (OFW)		
Inert gas backing (GTAW, PAW, GMAW)		
Transfer mode (spray/globular or pulse to short circuit –GMAW)		
GTAW current type/polarity (AC, DCEP, DCEN)	DCEN	DCEN

RESULTS

Visual Examination of Completed Weld (QW-302.4): Accept

☐ Transverse face and root bends [QW-462.3 (a)]; ☒ Longitudinal bends [QW-462.3 (b)]; ☐ Side bends (QW-462.2)

☐ Pipe bend specimen, corrosion-resistant weld metal overlay [QW-462.5(c)]

☐ Plate bend specimen, corrosion-resistant weld metal overlay [QW-462.5 (d)];

☐ Pipe specimen macro test for fusion [QW-462.5 (b)]; ☐ Plate specimen macro test for fusion [QW-462.5 (e)];

Type	Result	Type	Result	Type	Result
Face	Accept				
Root	Accept				

Alternative radiographic examination results (QW-191): _____

Fillet weld -- Fracture test (QW-181.2): _____ Length and percent of defects: _____

☐ Fillet welds in plate [QW-462.4(b)] ☐ Fillet welds in pipe [QW-462.4(c)

Macro examination (QW-184): _____ Fillet size (in.): _____ X _____ Concavity/convexity (in.): _____

Other tests: _____

Film or specimens evaluated by: _____ Company: _____

Mechanical tests conducted by: EMR Test Labs Laboratory Test Number: _____

Welding supervised by: Robert B Campbell

We certify that the statements in this record are correct and that the test coupons were prepared welded and tested in accordance with the requirements of Section IX of the ASME Code.

Manufacturer or Contractor: _____

Date: 6/24/2010 Certified by: Jim Andrews

QW-484A – SUGGESTED FORMAT A FOR WELDER PERFORMANCE QUALIFICATIONS (WPQ)

(See QW-301, Section IX, ASME Boiler and Pressure Vessel Code))

Welders Name: Jane I Martin — Identification No.: _____

Test Description

Identification of WPS followed: SS/2/4 — ☒ Test Coupon ☐ Production weld

Specification and type/grade or UNS number of base metal(s): _____ — Thickness: _____

Testing Conditions and Qualification Limits

Welding Variables (QW-350)	Actual values	Range qualified
Welding process (es)	GTAW	
Type (i.e., manual, semi-automatic) used	Manual	
Backing (with/without, metal, weld metal, double-welded, etc.)	without	
☐ Plate ☒ Pipe (enter diameter, if pipe or tube)	2"	2" – 6"
Base metal P- or S-Number to P-or S-Number	8 to 8	8
Filler metal or electrode specification(s) (SFA) (info only)	5.9	5.9
Filler metal or electrode classification(s) (info only)	308L	308L
Filler metal F-Number(s)	6	6
Consumable insert (GTAW or PAW)	NO	NO
Filler type (solid/metal or flux cored/powder (GTAW or PAW)	Solid	Solid
Deposit thickness for each process		
Process 1: GTAW 3 layers minimum ☐ Yes ☒ No	.62	
Process 2: GTAW 3 layers minimum ☐ Yes ☒ No	.90	
Position qualified (2G, 6G, 3F, etc.)	6G	
Vertical progression (uphill or downhill)	Uphill	
Type of fuel gas (OFW)		
Inert gas backing (GTAW, PAW, GMAW)	Argon	Argon
Transfer mode (spray/globular or pulse to short circuit –GMAW)		
GTAW current type/polarity (AC, DCEP, DCEN)	DCEN	DCEN

RESULTS

Visual Examination of Completed Weld (QW-302.4): Accept

☐ Transverse face and root bends [QW-462.3 (a)]; ☒ Longitudinal bends [QW-462.3 (b)]; ☐ Side bends (QW-462.2)

☐ Pipe bend specimen, corrosion-resistant weld metal overlay [QW-462.5(c)]

☐ Plate bend specimen, corrosion-resistant weld metal overlay [QW-462.5 (d)];

☐ Pipe specimen macro test for fusion [QW-462.5 (b)]; ☐ Plate specimen macro test for fusion [QW-462.5 (e)];

Type	Result	Type	Result	Type	Result
Face	Accept				
Root	Accept				

Alternative radiographic examination results (QW-191): _____

Fillet weld -- Fracture test (QW-181.2): _____ Length and percent of defects: _____

☐ Fillet welds in plate [QW-462.4(b)] ☐ Fillet welds in pipe [QW-462.4(c)

Macro examination (QW-184): _____ Fillet size (in.): _____ X _____ Concavity/convexity (in.): _____

Other tests: _____

Film or specimens evaluated by: _____ Company: _____

Mechanical tests conducted by: IMR Test Labs — Laboratory Test Number: _____

Welding supervised by: Robert B Campbell

We certify that the statements in this record are correct and that the test coupons were prepared welded and tested in accordance with the requirements of Section IX of the ASME Code.

Manufacturer or Contractor: _____

Date: 6/24/2010 — Certified by: Jim Andrews